



**(Billing Code: 4150-31)**

**DEPARTMENT OF HEALTH AND HUMAN SERVICES**

**Office of the Secretary**

**Findings of Research Misconduct**

**AGENCY:** Office of the Secretary, HHS.

**ACTION:** Notice.

**SUMMARY:** Findings of research misconduct have been made against William W. Cruikshank, Ph.D. (Respondent), former Professor of Medicine, Pulmonary Center, Boston University (BU) School of Medicine. Dr. Cruikshank engaged in research misconduct in research supported by National Cancer Institute (NCI), National Institutes of Health (NIH), grant R01 CA122737-01A2. The administrative actions, including debarment for a period of five (5) years, were implemented beginning on May 13, 2019, and are detailed below.

**FOR FURTHER INFORMATION CONTACT:**

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**SUPPLEMENTARY INFORMATION:** Notice is hereby given that the Office of Research Integrity (ORI) has taken final action in the following case:

William W. Cruikshank, Ph.D., Boston University School of Medicine: Based on the report of an investigation conducted by BU and analysis conducted by ORI in its oversight review, ORI found that Dr. William W. Cruikshank, former Professor of Medicine, Pulmonary Center, BU School of Medicine, engaged in research misconduct in research supported by NCI, NIH, grant R01 CA122737-01A2.

ORI found that Respondent engaged in research misconduct by knowingly, intentionally, and/or recklessly falsifying and/or fabricating data included in the following published paper, an earlier version of the submitted manuscript, a seminar presentation, and two grant applications submitted to NCI, NIH:

- *J. Clin. Invest.* 2011;121:4838-49 (hereafter referred to as “*JCI* 2011”). Retracted in *J. Clin. Invest.* 2014;124(11):5085.
- Manuscript submitted to *J. Clin. Invest.* (hereafter referred to as the “*JCI* manuscript”).
- Cruikshank, W. “A New Look at T Cell Cancers: A Case Study of Translational Research.” Presented at the Clinical Research Training (CREST) Seminar Series on 09/08/09 (hereafter referred to as the “CREST Presentation”).

- R01 CA122737-01A1 and R01 CA122737-01A2.

Respondent knowingly, intentionally, and recklessly falsified and/or fabricated Western blot data for protein expression in primary CD4+ T cells from patients with advanced T-cell acute lymphocytic leukemia (T-ALL) or cutaneous T-cell lymphomas (CTCL), by copying blot band images from unrelated sources, manipulating to disguise their origin, and combining multiple images to generate new figures to falsely represent results using sixty-four (64) such band images in the following sixteen (16) figures and related text included in one (1) manuscript, one (1) published paper, two (2) grant applications, and a seminar presentation:

- Figures 1 and 3 in *JCI* 2011, also included as Figure 3 (top and bottom right) in R01 CA122737-01A2 and as Figures 1 and 4 in the initial *JCI* manuscript, respectively
- Figure 8B in *JCI* 2011, also included as Figure 9 in R01 CA122737-01A2
- Figure 9 in *JCI* 2011
- Figures 14A and 14B in R01 CA122737-01A2, also included as Figure 14B in R01 CA122737-01A1
- Figure 4 in R01 CA122737-01A2, also included as Figure 4 in R01 CA122737-01A1
- Slides 24, 25, and 29 in the CREST Presentation

Specifically:

- In Figure 3 in *JCI* 2011, also included as Figure 4 in the *JCI* manuscript and Slide 24 of the CREST Presentation (with no white spaces between bands) as well as Figure 3 (top right section with the tubulin panel flipped 180° clockwise) in R01 CA122737-01A2, the respondent reused a single Western blot band image to represent expression of tubulin and Pro-IL-16 in more than one experimental and control subjects.
- In Figure 1 in *JCI* 2011, also included as Figure 1 in the *JCI* manuscript, Figure 3 (bottom panel) in R01 CA122737-01A2, and in Slide 25 of the CREST Presentation, the respondent copied blot band images from unpublished and/or previously published unrelated experiments and reused a single Western blot band image to falsely represent expression of p27Kip1 and Skp2 in more than one CTCL Patient.
- The respondent reused and relabeled blot band images from unpublished and/or previously published unrelated experiments to falsely represent new experimental results as follows:
  - four band images from the unpublished and unrelated figure “CSC x 24 hrs” to represent Skp2 protein expression in CTCL Patients

- six band images from Figure 5B in a paper published in *Biochemistry*<sup>1</sup> to represent Actin protein expression in eight (8) CTCL Patients, one (1) T-ALL Patient, and two (2) normal subjects in Figure 1 of *JCI* 2011 and Figure 3 (bottom panel) in R01 CA122737-01A2
- In Figure 8B (bottom part) in *JCI* 2011, also included as Figure 9 in R01 CA122737-01A2 and Slide 29 in the CREST Presentation, respondent falsely reused  $\beta$ -actin, Laminin B, alpha-tubulin, GFP-Pro-IL-16 and HSC70 band images of “Knockdown of HSC70 in Jurkat cells and Hut78 cells” as from Normal Human Patient and Normal Subject T-cells.
- In Figure 14A in R01 CA122737-01A2, respondent falsely reused GFP-Pro-IL-16 band images of “Knockdown of HSC70 in Jurkat cells” as AKT and phospho-AKT expression and the nuclear Pro-IL-16 band images from Figure 5B in *Biochemistry* 2002 as FOXO1 protein expression in human T-cells stimulated with IL-16.
- In Figure 14B in R01 CA122737-01A1 and R01 CA122737-01A2, respondent falsely reused band images from Figure 5B in *Biochemistry* 2002 that represents Anti-pro IL6 and Anti-Tubulin to represent FOXO1 protein expression in human T-cells.
- In Figure 9 in *JCI* 2011, respondent falsely reused band images representing CD26-T cells of CTCL Patient to also represent normal human subject control for CD26+ and control for CD26-T cells in the same figure.

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<sup>1</sup>Wilson KC, Cruikshank WW, Center DM, Zhang Y. Prointerleukin-16 contains a functional CcN motif that regulates nuclear localization. *Biochemistry* 2002;41:14306-14312 (hereafter referred to as “*Biochemistry* 2002”).

- In Figure 5 in R01 CA122737-01A1, also included as Figure 4 in R01 CA122737-01A2, respondent reused and falsely relabeled band images within the same figure to represent different experimental conditions.

Respondent intentionally, knowingly, and recklessly falsified and/or fabricated Western blot data for siRNA knockdown of Heat shock cognate 71 kDa protein (HSC70) in Jurkat cells purportedly with two different siRNA constructs, by reusing and relabeling ten (10) band images from experiments on Hut78 cells and a failed experiment in Jurkat cells, and included them in four (4) figures in one manuscript, one published paper, one grant application, and one presentation.

Specifically, respondent reused band images of an unpublished Western blot figure, by:

- reusing results of a single HSC70 siRNA knockdown on Hut78 cells and relabeling them to represent data from Jurkat cells in Figure 6 in the first submission of the *JCI* manuscript, Figure 6 in *JCI* 2011, and Figure 10 in R01 CA122737-01A2 (also included as Slide 27 in the CREST Presentation)
- reusing results for a second siRNA construct that failed to knockdown HSC70 in Jurkat cells and relabeling them as from control samples in Figure 6 in *JCI* 2011

Dr. Cruikshank entered into a Voluntary Exclusion Agreement (Agreement) and voluntarily agreed for a period of five (5) years, beginning on May 13, 2019:

- (1) to exclude himself from any contracting or subcontracting with any agency of the United States Government and from eligibility for or involvement in nonprocurement programs of the United States Government referred to as “covered transactions” pursuant to HHS’ Implementation (2 C.F.R. Part 376) of OMB Guidelines to Agencies on Governmentwide Debarment and Suspension, 2 C.F.R. Part 180 (collectively the “Debarment Regulations”); and
- (2) to exclude himself from serving in any advisory capacity to PHS including, but not limited to, service on any PHS advisory committee, board, and/or peer review committee, or as a consultant.

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**Wanda K. Jones,**  
Interim Director,  
Office of Research Integrity.

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